

*Allied
Telesyn
International*

CentreCOM™

*AT-3004SL
AT-3008SL
Multiport
Repeaters*

User Manual

© Copyright 1994 Allied Telesyn International, Corp.

All rights reserved. No part of this publication may be reproduced without prior written permission from
Allied Telesyn International, Corp.

Allied Telesyn International, Corp. reserves the right to make changes in specifications and other information contained in this document without prior written notice. The information provided herein is subject to change without notice. In no event shall Allied Telesyn International, Corp. be liable for any incidental, special, indirect, or consequential damages whatsoever, including but not limited to lost profits, arising out of or related to this manual or the information contained herein, even if Allied Telesyn International, Corp. has been advised of, known, or should have known, the possibility of such damages.

Trademarks: CentreCOM is a registered trademark of Allied Telesyn International, Corp. Ethernet is a registered trademark of Xerox Corporation. UNIX is a registered trademark of UNIX System Laboratories. Novell and NetWare are registered trademarks of Novell, Inc. Microsoft and MS-DOS are registered trademarks and LAN Manager and Windows for Workgroups are trademarks of Microsoft Corporation. 3Com is a registered trademark of 3Com. PC-NFS is a trademark of Sun Microsystems, Inc. PC/TCP is a registered trademark of FTP Software, Inc.

Table of Contents

Table of Contents	iii
Electrical Safety and Installation Requirements	v
Chapter 1	
Overview	1
CentreCOM Multiport Repeaters	1
AT-3004SL 4 Port with One AUI	
AT-3008SL 8 Port with One AUI	1
Features	2
Chapter 2	
Installation	3
Connections	3
Power	3
AUI Port	3
BNC Ports	4
Ventilation	4
Chapter 3	
Operation	5
Status Indicators	5
Segmentation	5
(Partitioning)	6
System Check	6
Chapter 4	
Troubleshooting	7
Chapter 5	
Configuration	9
Appendix A	
Data Cabling Techniques	11
10BASE-T	11
UTP Hub-to-MAU	12
Wiring	12
UTP MAU-to-MAU,	12
Hub-to-Hub Wiring	13
MDI/MDI-X	13
Switch	13

Appendix B	
Glossary	17
Appendix C	
CentreCOM AT-3004SL/AT-3008SL Manual Feedback	25
Appendix D	
Technical Support Fax Order	27
Incident Summary	27

RADIATED ENERGY

U.S. Federal Communications

Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved by the manufacturer or the FCC, can void your right to operate this equipment.

Canadian Department of Communications

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A. Prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications Du Canada.

This product has been tested and complies with the German Vfg 243/1991 requirements for Class B device.

Warning



SAFETY

ELECTRICAL NOTICES

ELECTRIC SHOCK HAZARD

To prevent ELECTRIC shock, do not remove cover. No user-serviceable parts inside. This unit contains HAZARDOUS VOLTAGES and should only be opened by a trained and qualified technician.

To avoid the possibility of ELECTRIC SHOCK, disconnect electric power to the product before connecting or disconnecting the LAN cables.

Caution



LIGHTNING DANGER

DANGER: DO NOT WORK on equipment or CABLES during periods of LIGHTNING ACTIVITY.

POWER CORD IS USED AS A DISCONNECTION DEVICE.
TO DE-ENERGISE EQUIPMENT, disconnect the power cord.

INSTALLATION

ELECTRICAL—AUTO VOLTAGE ADJUSTMENT

This product will automatically adjust to any voltage between the ranges shown on the label.

ELECTRICAL—TYPE CLASS 1 EQUIPMENT

THIS EQUIPMENT MUST BE EARTHED. Power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

ELECTRICAL—CORD NOTICE

Use power cord, maximum 4.5 meters long, rated 6 amp minimum, 250V, made of HAR cordage molded IEC 320 connector on one end and on the other end a plug approved by the country of end use.

Caution



MOUNTING INSTRUCTIONS

These models are designed for operation in the HORIZONTAL position. VERTICAL MOUNTING must not be done without the use of an Allied Telesis vertical mount chassis designed for this purpose.

Air vents must not be blocked and must have free access to the room ambient air for cooling.

DO NOT detach rubber feet from the product unless an Allied Telesis vertical mounting chassis is being used.

OPERATING TEMPERATURE

This product is designed for a maximum ambient temperature of 50 degrees Celsius.

ALL COUNTRIES: Install product in accordance with local and National Electrical Codes.

STRAHLUNGSENERGIE

BESCHEINIGUNG DES HERSTELLERS/IMPORTEURS

Hiermit wird bescheinigt, daß das Multiport Repeater Typenbezeichnung AT-3004SL/AT-3008SL in Übereinstimmung mit den Bestimmungen der BAPT-AmtsblIVfg 243/1991 Klasse B funk-entstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z. B. MeBsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

Dem Zentralamt für Zulassungen im Fertmehwesen wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einenhaltung der Bestimmungen eingeräumt.

Von Benutzer zusammengestellte Systeme, die dieses Gerät beihalten, müssen den Bestimmungen von Vfg 243/1991 Klasse B, entsprechen.

Achtung



SICHERHEIT

ACHTUNG: GEFAHRLICHE SPANNUNG

Das Gehäuse nicht öffnen. Das Gerät enthält keine vom Benutzer wartbaren Teile. Das Gerät steht unter Hochspannung und darf nur von qualifiziertem technischem Personal geöffnet werden. Vor Anschluß der LAN-Kabel, Gerät vom Netz trennen.

GEFAHR DURCH BLITZSCHLAG

GEFAHR: Keine Arbeiten am Gerät oder an den Kabeln während eines Gewitters ausführen

Vorsicht



VORSICHT: DAS NETZKABEL DIENT ZUM TRENNEN DER STROMVERSORGUNG. ZUR TRENNUNG VOM NETZ, KABEL AUS DER

VORSICHT STECKDOSE ZIEHEN.

INSTALLATION

AUTOMATISCHE SPANNUNGSEINSTELLUNG

Dieses Gerät stellt sich automatisch auf die auf dem Etikett aufgeführten Spannungswerte ein.

KLASSE 1 GERÄTE

DIESE GERÄTE MÜSSEN GEERDET SEIN. Der Netzstecker darf nur mit einer vorschriftsmäßig geerdeten Steckdose verbunden werden. Ein unvorschriftsmäßiger Anschluß kann das Metallgehäuse Teile unter gefährliche elektrische Spannungen setzen.

NETZKABEL

Das Netzkabel sollte eine maximale Länge von 4.5 Metern, einen Nennwert von mindestens 6 A und 250 V haben, aus HAR-Material hergestellt und mit einer gepreßten, IEC 320 entsprechenden, Anschlußverbindung an einem Ende, und am anderen Ende mit einem im Land des Endverbrauchers geprüften Stecker ausgestattet sein.

Vorsicht



MONTAGEANWEISUNGEN

VORSICHT: Diese Modelle sind für Betrieb in horizontaler Position entworfen worden. Das Gerät darf NICHT OHNE Gebrauch eines dafür entworfenen Allied Telesis-Vertikalmontagegestells in VERTIKALER Position montiert werden.

VORSICHT: Die Entlüftungsöffnungen dürfen nicht versperrt sein und müssen zum Kühlen freien Zugang zur Raumluft haben.

VORSICHT: Die Gummifüße NICHT ENTFERNEN, außer bei Gebrauch des Allied Telesis-Vertikalmontagegestells.

BETRIEBSTEMPERATUR

Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 50° C entworfen.

ALLE LÄNDER: Installation muß örtlichen und nationalen elektrischen Vorschriften entsprechen.

STRÅLINGSENERGI

Dette kommersielle produkt opfylder de krav, der i USA stilles til udstyr af Klasse A.

Dette produkt opfylder krav, der ifølge German Vfg 243/1991 stilles til udstyr af Klasse B.

Advarsel



SIKKERHED

ELEKTRISKE FORHOLDSREGLER

ADVARSEL: RISIKO FOR ELEKTRISK STØD

For at forebygge ELEKTRISK stød, undlad at åbne apparatet. Der er ingen indre dele, der kan repareres af brugeren. Denne enhed indeholder LIVSFARLIGE STRØMSPÆNDINGER og bør kun åbnes af en uddannet og kvalificeret tekniker. For at undgå risiko for ELEKTRISK STØD, afbrydes den elektriske strøm til produktet, før LAN-kablerne monteres eller afmonteres.

Advarsel



FARE UNDER UVEJR

FARE: UNDLAD at arbejde på udstyr eller KABLER i perioder med LYNAKTIVITET.

ADVARSEL: DEN STRØMFØRENDE LEDNING BRUGES TIL AT AFBRYDE STRØMMEN. SKAL STRØMMEN TIL APPARATET AFBRYDES, tages ledningen ud af stikket.

INSTALLATION

ELEKTRISK—AUTOMATISK SPÆNDINGSREGULERING

Dette apparat vil automatisk tilpasse sig enhver spænding indenfor de værdier, der er angivet på etiketten.

ELEKTRISK—KLASSE 1-UDSTYR

DETTE UDSTYR KRÆVER JORDFORBINDELSE. Stikket skal være forbundet med en korrekt installeret jordforbundet stikkontakt. En ukorrekt installeret stikkontakt kan sætte livsfarlig spænding til tilgængelige metaldele.

ELEKTRISK—LEDNING

Anvend ledning af maksimum 4,5 meters længde, med en kapacitet på minimum 6 amp., 250 v, bestående af en IEC 320 connector med indstøbt HAR ledning i den ene ende og et stik i den anden ende godkendt der er af myndighederne i brugerlandet.

Advarsel



INSTRUKTIONER FOR OPSTILLING

ADVARSEL: Disse modeller er konstrueret til at betjenes i HORIZONTAL position (vandret). VERTIKAL OPSTILLING (lodret) må IKKE FORETAGES uden brug af et Allied Telesis vertikalt monteringsstel konstrueret til dette formål.

ADVARSEL: Ventilationsåbninger må ikke blokeres og skal have fri adgang til den omgivende luft i rummet for afkøling.

ADVARSEL: UNDLAD at fjerne gummisoklerne fra apparatet, med mindre der anvendes et Allied Telesis vertikalt monteringsstel.

BETJENINGSTEMPERATUR

Dette apparat er konstrueret til en omgivende temperatur på maksimum 50 grader C.

ALLE LANDE: Installation af produktet skal ske i overensstemmelse med lokal og national lovgivning for elektriske installationer.

STRALINGSENERGIE

Dit handelsprodukt werd getest en voldoet aan de Amerikaanse vereisten voor een klasse A toestel.

Dit produkt werd getest en voldoet aan de Duitse Vfg 243/1991 vereisten voor een klasse B toestel.

Waarschuwingen



VEILIGHED

WAARSCHUWINGEN MET BETrekking tot ELEkTRICITEIT

WAARSCHUWING: GEVAAR VOOR ELEkTRISCHE SCHOKKEN

Gelieve het deksel niet te verwijderen, teneinde ELEkTRISCHE schokken te voorkomen. Binnenin bevinden zich geen onderdelen die door de gebruiker kunnen worden onderhouden. Dit toestel staat onder GEVAARLIJKE SPANNING en mag alleen worden geopend door een daartoe opgeleide en bevoegde technicus. Om het gevaar op ELEkTRISCHE SCHOKKEN te vermijden, moet u het toestel van de stroombron ontkoppelen alvorens de LAN-kabels te koppelen of ontkoppelen.

Waarschuwingen



GEVAAR VOOR BLIKSEMINSLAG

GEVAAR: NIET aan toestellen of KABELS WERKEN bij BLIKSEM.

WAARSCHUWING: HET TOESTEL WORDT UITGESCHAKELD DOOR DE STROOMKABEL TE ONTKOPPELEN.
OM HET TOESTEL STROOMLOOS TE MAKEN: de stroomkabel ontkoppelen.

INSTALLATIE

ELEkTRISCH—AUTOMATISCHE AANPASSING VAN DE SPANNING

Dit toestel past zich automatisch aan elke spanning aan, tussen de waarden op het label vermeld.

ELEkTRISCHE—TOESTELLEN VAN KLASSE 1

DIT TOESTEL MOET GEAARD WORDEN. De stekker moet aangesloten zijn op een juist geaarde contactdoos. Een onjuist geaarde contactdoos kan de metalen onderdelen waarmee de gebruiker eventueel in aanraking komt onder gevaarlijke spanning stellen.

ELEkTRISCHE—SNOEREN

Gebruik een elektrisch snoer, maximum 4,5 meter lang, berekend voor ten minste 6 ampère, 250 V, uit HAR vervaardigd, met aan het ene uiteinde een gevormde IEC 320 stekker en aan het andere uiteinde een stekker die goedgekeurd is door het land waar het toestel zal worden gebruikt.

Waarschuwingen



MONTAGE-INSTRUCTIES

WAARSCHUWING: Deze modellen zijn ontworpen om te werken in HORIZONTALE stand.

VERTICALE MONTAGE mag NIET UITGEVOERD WORDEN, tenzij een daar toe speciaal ontworpen Allied Telesis chassis voor verticale montage wordt gebruikt.

WAARSCHUWING: De ventilatiegaten mogen niet worden gesperrt en moeten de omgevingslucht ongehinderd toelaten voor afkoeling.

WAARSCHUWING: De rubberen voetjes NIET van het produkt LOSMAKEN behalve wanneer een chassis voor vertikale montage van Allied Telesis wordt gebruikt.

BEDRIJFSTEMPERATUUR

De omgevingstemperatuur voor dit produkt mag niet meer bedragen dan 50 graden Celsius.

ALLE LANDEN: het toestel installeren overeenkomstig de lokale en nationale elektrische voorschriften.

ENERGIE RAYONNÉE

Ce matériel a été testé et est certifié conforme par la réglementation américaine aux normes définies pour les appareils de classe A. Ce matériel a été testé et est certifié conforme par la réglementation allemande Vfg 243/1991 aux normes définies pour les appareils de classe B.

Avertissement SECURITE



INFORMATION SUR L'ELECTRICITE

AVERTISSEMENT: DANGER D'ELECTROCUTION

Pour empêcher les dangers d'ELECTROCUTION, ne pas enlever le couvercle. L'équipement ne contient aucun élément réparable par l'utilisateur. Cet appareil comprend des TENSIONS DANGEREUSES et ne doit être ouvert que par un technicien dûment qualifié. Pour éviter tout risque d'ELECTROCUTION, débrancher l'appareil de la prise de courant avant de connecter ou de déconnecter les câbles LAN.

Danger



DANGER DE FOUDRE

DANGER: NE PAS MANIER l'équipement ou les CABLES pendant les périodes d'activité orageuse.

ATTENTION: LE CORDON D'ALIMENTATION SERT DE MISE HORS CIRCUIT
POUR COUPER L'ALIMENTATION DE L'APPAREIL, débranchez le cordon.

INSTALLATION

ELECTRICITE—REGLAGE DE TENSION AUTOMATIQUE

Ce produit peut s'ajuster automatiquement sur n'importe quelle tension comprise dans la plage indiquée sur le label.

ELECTRICITE—EQUIPEMENT DE CLASSE 1

CET APPAREIL DOIT ETRE MIS A LA TERRE. La prise de courant doit être branchée dans une prise femelle correctement mise à la terre. Sinon, des tensions dangereuses risqueraient d'atteindre les pièces métalliques accessibles à l'utilisateur.

ELECTRICITE—INFORMATION SUR LE CORDON

Utiliser un cordon secteur de 4,5 mètres de long maximum, calibré à 6 ampères minimum, 250V, et fabriqué en câblage HAR avec connecteur IEC 32C moulé à une extrémité et à l'autre extrémité, une prise de courant mâle répondant aux normes du pays d'utilisation.

Attention



INSTRUCTIONS DE MONTAGE

ATTENTION: Ces modèles sont destiné à fonctionner en position horizontale. L'appareil NE DOIT PAS être utilisé en MONTAGE VERTICAL sans employer un châssis de montage vertical Allied Telesis conçu à cet effet.

ATTENTION: Ne pas bloquer les fentes d'aération, ce qui empêcherait l'air ambiant de circuler librement pour le refroidissement.

ATTENTION: NE PAS ôter les pattes d'attache en caoutchouc du produit, à moins d'utiliser un châssis de montage vertical Allied Telesis.

TEMPERATURE DE FONCTIONNEMENT

Ce produit est capable de tolérer une température ambiante maximum de 50 degrés Celsius

POUR TOUS PAYS: Installer le produit conformément aux normes électriques nationales et locales.

SÄTEILYENERGIA

Tämä kaupallinen tuote on testattu ja noudattaa Yhdysvaltojen vaatimuksia luokan A laitteelle.

Tämä kaupallinen tuote on testattu ja noudattaa Saksan Vfg 243/1991 -vaatimuksia luokan B laitteelle.

Varoitus



TURVALLISUUS

SÄHKÖÖN LIITTYVIÄ HUOMAUTUKSIA

VAROITUS: SÄHKÖISKUVAARA

Estääksesi SÄHKÖISKUN älä poista kantta. Sisällä ei ole käyttäjän huollettavissa olevia osia. Tämä laite sisältää VAARALLISIA JÄNNITTEITÄ ja sen voi avata vain koulutettuja ja päteviä teknikkoja. Välttääksesi SÄHKÖISKUN mahdollisuuden katkaise sähkövirta tuotteeseen ennen kuin liität tai irrotat paikallisverkon (LAN) kaapelit.

Hengenvaara



SALAMANISKUVAARA

HENGENVAARA: ÄLÄ TYÖSKENTELE laitteiden tai KAAPELEIDEN KANSSA SALAMOINNIN AIKANA.

HUOMAUTUS: VIRTajohtoa KÄYTETÄÄN VIRRANKATKAISULAITTEENA. VIRTAA KATKAISTAAN irrottamalla virtajohto.

ASENNUS

SÄHKÖ—AUTOMAATTINEN JÄNNITTEENSÄÄTÖ

Tämä tuote säättää automaattisesti mihin tahansa jännitteeseen ohjetarrassa annetuujen arvojen välillä.

SÄHKÖ—TYYPPILUOKAN 1 LAITTEET

TÄMÄ LAITE TÄYTYY MAADOTTAÄÄ. Pistoke täytyy liittää kunnollisesti maadoitettuun pistorasiaan. Virheellisesti johdotettu pistorasia voi altistaa metalliosat vaarallisille jännitteille.

SÄHKÖ—JOHTOON LIITTYVÄ HUOMAUTUS

Käytä seuraavanlaista virtajohtoa: maksimipituus 4,5 metriä, minimiteho 6 ampeeria, 250 V, valmistettu HAR-johdostosta, muovattu IEC 320 -liitin toisessa päässä ja käytömaassa hyväksytty pistoke toisessa päässä.

Huomautus



ASENNUSOHJEET

HUOMAUTUS: Nämä mallit on suunniteltu käytettäviksi VAAKA-asennossa. PYSTYASENNUSTA EI SAA TEHDÄ ilman Allied Telesis -pystykiinnitysalustaa, joka on suunniteltu tähän tarkoitukseen.

HUOMAUTUS: Ilmavaihoreikä ei pidä tukkia ja niillä täytyy olla vapaa yhteys ympäröivään huoneilmaan, jotta ilmanvaihto tapahtuisi.

HUOMAUTUS: ÄLÄ irroita kumijalkoja tuotteesta, ellei Allied Telesis-pystykiinnitysalusta ole käytössä.

KÄYTTÖLÄMPÖTILA

Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 50° C.

KAIKKI MAAT: Asenna tuote paikallisten ja kansallisten sähköturvallisuusmääräysten mukaisesti.

ENERGIA IRRADIATA

Questo prodotto commerciale è stato collaudato e risponde ai requisiti U.S.A. per i dispositivi di classe A.
Questo prodotto è stato collaudato e risponde ai requisiti della legge tedesca Vfg 243/1991 per i dispositivi di classe B.

Attenzione**NORME DI SICUREZZA****AVVERTENZE ELETTRICHE****ATTENZIONE: PERICOLO DI SCOSSE ELETTRICHE**

Per evitare SCOSSE ELETTRICHE non asportare il coperchio. Le componenti interne non sono riparabili dall'utente. Questa unità ha TENSIONI PERICOLOSE e va aperta solamente da un tecnico specializzato e qualificato. Per evitare ogni possibilità di SCOSSE ELETTRICHE, interrompere l'alimentazione del dispositivo prima di collegare o staccare i cavi LAN.

Pericolo**PERICOLO DI FULMINI**

PERICOLO: NON LAVORARE sul dispositivo o sui CAVI durante PRECIPITAZIONI TEMPORALI.

ATTENZIONE: IL CAVO DI ALIMENTAZIONE È USATO COME DISPOSITIVO DI DISATTIVAZIONE.
PER TOGLIERE LA CORRENTE AL DISPOSITIVO staccare il cavo di alimentazione.

INSTALLAZIONE**ELETTRICITÀ -REGOLAZIONE AUTOMATICA DELLA TENSIONE**

Questo prodotto regolerà automaticamente la tensione ad un valore compreso nella gamma indicata sull'etichetta.

ELETTRICITÀ -DISPOSITIVI DI CLASSE 1

QUESTO DISPOSITIVO DEVE AVERE LA MESSA A TERRA. La spina deve essere inserita in una presa di corrente specificamente dotata di messa a terra. Una presa non cablata in maniera corretta rischia di scaricare una tensione pericolosa su parti metalliche accessibili.

ELETTRICITÀ -AVVERTENZA SUL CAVO

Usare un cavo della lunghezza massima di metri 4,5, con capacità minima di 6 A, 250 V, di filo HAR, dotato di connettore stampato IEC 320 ad un'estremità e di spina approvata dal paese di destinazione all'altra.

Attenzione**ISTRUZIONI PER IL MONTAGGIO**

ATTENZIONE: questi modelli sono concepiti per il funzionamento in posizione ORIZZONTALE. NON È POSSIBILE EFFETTUARE IL MONTAGGIO VERTICALE senza utilizzare l'apposito telaio per il montaggio verticale Allied Telesis.

ATTENZIONE: le prese d'aria non vanno ostruite e devono consentire il libero ricircolo dell'aria ambiente per il raffreddamento.

ATTENZIONE: NON staccare il piedino in gomma dal prodotto tranne qualora si utilizzi il telaio Allied Telesis per il montaggio verticale.

TEMPERATURA DI FUNZIONAMENTO

Questo prodotto è concepito per una temperatura ambientale massima di 50 gradi centigradi.

TUTTI I PAESI: installare il prodotto in conformità alle vigenti normative elettriche nazionali.

UTSTRÅLT ENERGI

Dette kommersielle produktet har blitt testet og er i samsvar med amerikanske krav for et A-Klasse apparat.

Dette produktet har blitt testet og er i samsvar med tyske Vfg 243/1991 krav for et B-Klasse apparat.

Advarsel**SIKKERHET****ELEKTRISKE MEDDELELSE****ADVARSEL: FARE FOR ELEKTRISK SJOKK**

For å unngå ELEKTRISK sjokk, må dekslet ikke tas av. Det finnes ingen deler som du kan bruke på innsiden. Denne enheten inneholder FARLIGE SPENNING, og må kun åpnes av en opplært, kvalifisert tekniker. For å unngå muligheten av ELEKTRISK SJOKK, må den elektriske strømmen til produktet være av når du slår LAN-ledninger av og på.

Fare**FARE FOR LYNANTENNELSE**

FARE: MÅ IKKE BRUKES på utstyr eller ledninger mens LYN-AKTIVITET er i gang.

FORSIKTIG: STRØMLEDNINGEN BRUKES TIL Å SLÅ APPARATET AV.

HVIS DU VIL DEAKTIVISERE UTSTYRET, må du fjerne strømledningen.

INSTALLASJON**ELEKTRISK — AUTO SPENNINGSTILPASSING**

Dette produktet vil automatisk bli tilpasset hvilken som helst strøminnstilling i de områdene som vises på etiketten.

ELEKTRISKE — TYPE 1. KLASSE UTSTYR

DETTE UTSTYRET MÅ JORDES. Strømkontakten må være tilkoplet en korrekt jordet grunnstøpselkontakt. En støpselkontakt som ikke er jordet på rett måte, kan tilføre farlig spenning til lett tilgjengelige metalldele.

ELEKTRISKE — MEDDELELSE OM LEDNINGER

Bruk en strømledning av maksimal størrelse 4,5 m i lengde, vurdert for minst av 6 amp, 250V, fremstilt av HAR ledning IEC 320 koplingsstykke på den ene kanten og på den andre kanten en plugg som har blitt godkjent i det landet hvor den siste brukeren befinner seg.

Forsiktig**BRUKSANVISNINGER FOR MONTERING**

FORSIKTIG: Disse modellene er beregnet til bruk i HORIZONTAL stilling.

VERTIKAL MONTERING må IKKE UTFØRES uten bruk av et Allied Telesis vertikal monteringschassis som er spesiallaget til dette formål.

FORSIKTIG: Luftventilene må ikke blokkeres og må ha fri tilgang til luft med romtemperatur for avkjøling.

FORSIKTIG: Gummiføttene må IKKE fjernes fra produktet med mindre en Allied Telesis vertikal monteringschassis er i bruk.

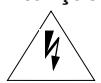
DRIFTSTEMPERATUR

Dette produktet har blitt fremstilt til bruk med maksimum romtemperatur på 50 grader celsius.

ALLE LAND: Produktet må installeres i samsvar med de lokale og nasjonale elektriske koder.

ENERGIA IRRADIADA

Este produto foi testado e atende aos requisitos para dispositivos comerciais de Classe A nos E.U.A.
Este produto foi testado e atende aos requisitos Vfg 243/1991 para dispositivos de Classe B na Alemanha

Atenção**SEGURANÇA****AVISOS SOBRE CARACTERÍSTICAS ELÉTRICAS**
ATENÇÃO: PERIGO DE CHOQUE ELÉTRICO

Para evitar CHOQUE ELÉTRICO, não retire a tampa. Não contém peças que possam ser consertadas pelo usuário. Este aparelho contém VOLTAGENS PERIGOSAS e só deve ser aberto por um técnico qualificado e treinado. Para evitar a possibilidade de CHOQUE ELÉTRICO, desconecte o aparelho da fonte de energia elétrica antes de conectar e desconectar os cabos da LAN.

Perigo**PERIGO DE CHOQUE CAUSADO POR RAIO**

PERIGO: NÃO TRABALHE no equipamento ou nos CABOS durante períodos suscetíveis de QUEDAS DE RAIO.

CUIDADO: O CABO DE ALIMENTAÇÃO É UTILIZADO COMO UM DISPOSITIVO DE DESCONEXÃO.
PARA DESELETIFICAR O EQUIPAMENTO desconecte o cabo de alimentação.

INSTALAÇÃO**ELÉTRICO - AJUSTE AUTOMÁTICO DE VOLTAGEM**

Este produto ajustar-se-á automaticamente a qualquer voltagem que esteja dentro dos limites indicados no rótulo.

ELÉTRICO - EQUIPAMENTOS DO TIPO CLASSE 1

DEVE SER FEITA LIGAÇÃO DE FIO TERRA PARA ESTE EQUIPAMENTO. O plugue deve ser conectado a uma tomada com ligação de fio terra. Tomadas sem ligação de fio terra podem transmitir voltagens perigosas a peças metálicas expostas.

ELÉTRICO - AVISO SOBRE O CABO DE ALIMENTAÇÃO

Use cabo de alimentação com comprimento máximo de 4,5 metros, com uma capacidade mínima de 6 amp e 250 V, fabricado de material para cabo HAR com conector moldado IEC 320 em uma extremidade e, na outra extremidade, um plugue aprovado para uso no país em questão.

Cuidado**INSTRUÇÕES DE INSTALAÇÃO**

CUIDADÔ: Este modelos foram projetados para funcionar na posição HORIZONTAL.

NÃO DEVE SER EFETUADA INSTALAÇÃO VERTICAL sem o uso de um chassis de montagem vertical Allied Telesis projetado para este fim específico.

CUIDADO: As entradas de ar não devem ser bloqueadas e devem ter acesso livre ao ar ambiente para arrefecimento adequado do aparelho.

CUIDADO: NÃO RETIRE os calços de borracha do produto a menos que esteja sendo usado um chassis de montagem vertical Allied Telesis.

TEMPERATURA DE FUNCIONAMENTO

Este produto foi projetado para uma temperatura ambiente máxima de 50 graus centígrados.

TODOS OS PAÍSES: Instale o produto de acordo com as normas federais e locais para instalações elétricas.

ENERGIA RADIANA

Este producto comercial ha sido probado y cumple con las normas requeridas en los EE. UU. para un dispositivo de Clase A.

Este producto ha sido probado y cumple con los requisitos Vfg 243/1991 de Alemania para un dispositivo de Clase B.

Advertencia**SEGURIDAD****AVISOS ELECTRICOS****ADVERTENCIA: PELIGRO DE ELECTROCHOQUE**

Para evitar un ELECTROCHOQUE, no quite la tapa. No hay ningún componente en el interior al cual puede prestar servicio el usuario. Esta unidad contiene VOLTAJES PELIGROSOS y sólo deberá abrirla un técnico entrenado y calificado. Para evitar la posibilidad de ELECTROCHOQUE desconecte la corriente eléctrica que llega al producto antes de conectar o desconectar los cables LAN.

Peligro**PELIGRO DE RAYOS**

PELIGRO: NO REALICE NINGUN TIPO DE TRABAJO O CONEXION en los equipos o en LOS CABLES durante TORMENTAS DE RAYOS

ATENCION: EL CABLE DE ALIMENTACION SE USA COMO UN DISPOSITIVO DE DESCONECTACION. PARA DESACTIVAR EL EQUIPO, desconecte el cable de alimentación.

INSTALACION**ELECTRICO—AUTO-AJUSTE DE TENSION**

Este producto se ajustará automáticamente a cualquier tensión entre los valores máximos y mínimos indicados en la etiqueta.

ELECTRICO—EQUIPO DEL TIPO CLASE 1

ESTE EQUIPO TIENE QUE TENER CONEXION A TIERRA. El cable tiene que conectarse a un enchufe con tierra debidamente instalado. Un enchufe que no está correctamente instalado podría ocasionar tensiones peligrosas en las partes metálicas están expuestas.

ELECTRICO—ADVERTENCIA SOBRE EL CABLE

Use un cable eléctrico con un máximo de 4,5 metros de largo, con una capacidad mínima de 6 amperios, 250 V, hecho de cable HAR, con el conector moldeado IEC 320 en un extremo y con un enchufe que está aprobado por el país de uso final en el otro.

Atencion**INSTRUCCIONES DE MONTAJE**

ATENCION: Estos modelos están diseñados para operar en posición HORIZONTAL. NO SE DEBEN MONTAR VERTICALMENTE sin el uso de un chasis de montaje vertical de Allied Telesis que se ha diseñado para este fin.

ATENCION: Las aberturas para ventilación no deberán bloquearse y deberán tener acceso libre al aire ambiental de la sala para su enfriamiento.

ATENCION: NO separe las patas de goma del producto a menos que se esté usando un chasis de montaje vertical de Allied Telesis.

TEMPERATURA REQUERIDA PARA LA OPERACIÓN

Este producto está diseñado para una temperatura ambiental máxima de 50 grados C.

PARA TODOS LOS PAÍSES: Monte el producto de acuerdo con los Códigos Eléctricos locales y nacionales.

ENERGIUTSTRÅLNING

Denna handelsprodukt har testats och befunnits vara i enlighet med U.S.A:s krav för klass A utrustning.

Denna produkt har testats och befunnits vara i enlighet med Tysklands Vfg 243/1991 krav för klass B utrustning.

Varning**SÄKERHET****TILLKÄNNAGIVANDE BETRÄFFANDE ELEKTRICITETSRIKS:****RISK FÖR ELEKTRISK STÖT**

För att undvika ELEKTRISK stöt, ta ej av locket. Det finns inga delar inuti som behöver underhållas. Denna apparat är under HÖGSPÄNNING och får endast öppnas av en utbildad kvalificerad tekniker. För att undvika ELEKTRISK STÖT, koppla ifrån produktens strömanslutning innan LAN-kablarna ansluts eller kopplas ur.

Fara**FARA FÖR BLIXTNEDSLAG**

FARA: ARBETA EJ på utrustningen eller kablarna vid ÅSKVÄDER.

WARNING: NÄTKABELN ANVÄNDS SOM STRÖMBRYTARE

FÖR ATT KOPPLA FRÅN STRÖMMEN, dra ur nätkabeln.

INSTALLATION**ELEKTRISKT—AUTOMATISK SPÄNNINGSJUSTERING**

Denna produkt justeras automatiskt till alla spänningar inom omfånget som indikeras på produktens märkning.

ELEKTRISKT—TYP KLASSE 1 UTRUSTNING

DENNA UTRUSTNING MÄSTE VARA JORDAD. Nätkabeln måste vara ansluten till ett ordentligt jordat uttag. Ett felaktigt uttag kan göra att närliggande metalldelar utsätts för högspänning. Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk.

ELEKTRISKT—ANMÄRKNING BETRÄFFANDE KABELN

Använd en kabel med maximum längd 4,5 meter och minimum 6 amp nominal, 250V, av HAR kabelfabrikat med ett specialutformat IEC 320-kontaktdon i ena änden och i den andra en plugg som godkänts i landet där produkten används.

Varning**MONTERINGSINSTRUKTIONER**

VARNING: Dessa modeller är konstruerade för användning i HORISONTALLÄGE.

VERTIKALMONTERING får EJ UTFÖRAS utan att ett Allied Telesis specialkonstruerat vertikalt monteringschassi används.

WARNING: Luftventilerna får ej blockeras och måste ha fri tillgång till omgivande rumsluft för avsvalning.

WARNING: Ta ej bort gummifötterna från produkten om inte ett Allied Telesis vertikalt monteringschassi används.

DRIFTSTEMPERATUR

Denna produkt är konstruerad för rumstemperatur ej överstigande 50 grader Celsius.

ALLA LÄNDER: Installera produkten i enlighet med lokala och statliga bestämmelser för elektrisk utrustning.

Chapter 1

Overview

CentreCOM Multiport Repeaters

**AT-3004SL 4 Port with
One AUI**

**AT-3008SL 8 Port with
One AUI**

The CentreCOM Multiport Repeaters are designed to connect up to 8 Ethernet/IEEE 802.3 thin (10BASE2) network segments. In addition to the thinnet interfaces, a single IEEE 802.3 Attachment Unit Interface (AUI) is provided for attachment to external transceivers. In this way, these repeaters allow for connection between the different media (thick or thinnet coaxial, fiber optic and twisted pair) with the choice of the appropriate transceiver.

With each BNC equipped interface, a 50Ω internal cable termination is provided via an externally accessible switch. This feature enables the thinnet cable to attach directly to the repeater interface, thus eliminating the need for a T-connector and terminator.

The AT-3004SL and AT-3008SL provide 4 and 8 BNC interfaces respectively, and a single IEEE 802.3 AUI, which provides easy attachment to the media.

The CentreCOM Multiport Repeaters provide packet regeneration, which results in a higher performance network. Packet regeneration includes regenerating preamble, retiming of the data packets, and extending collision fragments to ensure collision enforcement.

Fault protection is provided by the CentreCOM Multiport Repeaters in 2 distinct ways. First, each segment will automatically disconnect itself when 32 consecutive collisions occur on the same segment. Second, jabber protection will automatically insert an idle state (10 μ s duration) for packets over 5 ms, but less than 20 ms in length.

Network diagnostics are provided on the front of the CentreCOM Multiport Repeaters with three LEDs for each network segment. Packet “Receive” and “Collision” are displayed, aiding in troubleshooting each segment. Segment “On Line” is also displayed to aid in fault isolation, which together with a segmentation switch, provide a manual partitioning capability for each segment.

Features

- ❑ IEEE 802.3 compliant, Ethernet Version 1.0 and 2.0 compatible
- ❑ Connects up to 8 thin (10BASE2) coaxial network segments
- ❑ Automatic/manual partitioning of network segments
- ❑ Supports all Ethernet media including fiber optics via an AUI port
- ❑ Externally accessible terminator switch on BNC ports
- ❑ Packet regeneration/retiming and jabber lock-up protection
- ❑ Occupies just one slot in a 19 inch rack
- ❑ Receive, SQE/COL and On Line LEDs per port
- ❑ Floating ground on BNC shield allows for daisy chain topology
- ❑ One year warranty

Figure 1 and Figure 2 show the indicators and ports for the CentreCOM AT-3004SL and AT-3008SL Multiport Repeaters.

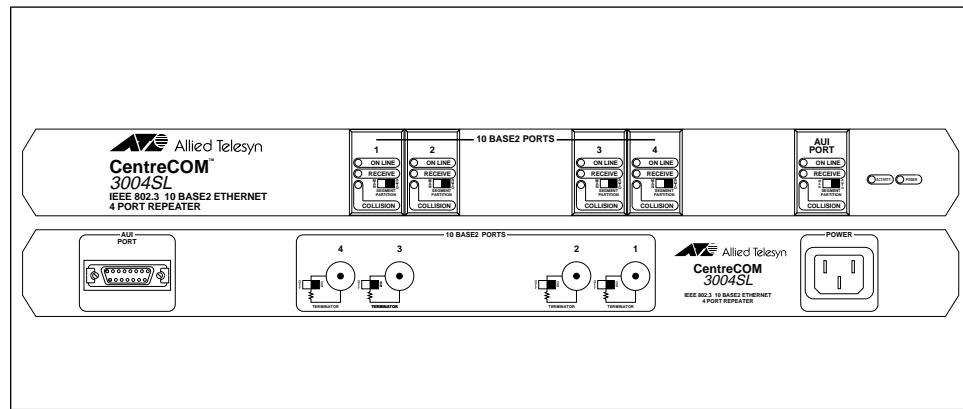


Figure 1: AT-3004SL Front and Back Panels

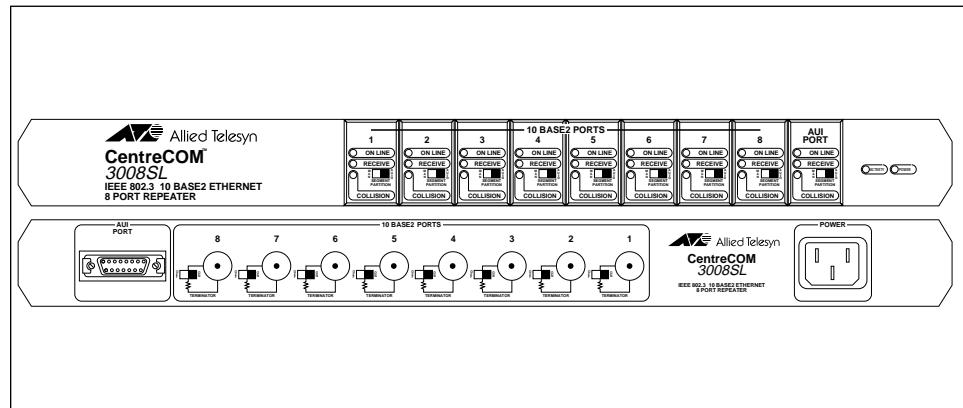


Figure 2: AT-3008SL Front and Back Panels

Chapter 2

Installation

Connections

Attention



Before installing AT-3004SL/AT-3008SL Multiport Repeaters, read the electrical safety and installation requirements starting on page i.

Power

Check your network cabling for proper configuration before installing the AT-3004SL and AT-3008SL repeaters. Power connections are made at the back panel. The AT-3004SL and AT-3008SL repeaters have a universal power supply that will accept either 110 or 220 VAC at 50-60 Hz.

AUI Port

An AUI port is provided for connection to an Ethernet transceiver on a backbone or a fiber optic transceiver through an Ethernet Version 2.0 or IEEE 802.3 AUI cable. See Figure 3. The AUI port is fully repeated and has externally switchable Auto/Off Line modes for segmenting or isolating from other ports.

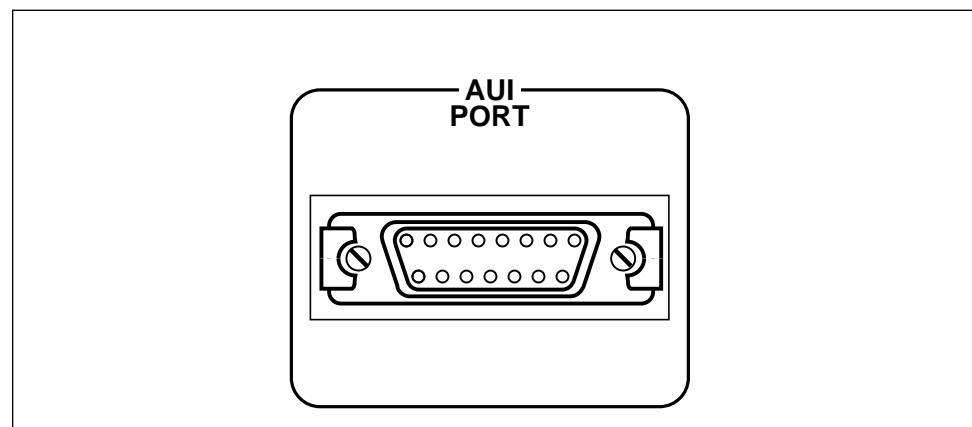


Figure 3: AUI Network Port

BNC Ports

BNC Connections, 10BASE2. A thin Ethernet coaxial cable may be plugged directly into the BNC port located on the back panel. See Figure 4. Next to each of these ports is the $50\ \Omega$ termination switch. If the coax is plugged directly without a BNC-T or external terminator then the terminator switch for the respective port must be enabled by selecting the ON position. Each BNC is switched individually.

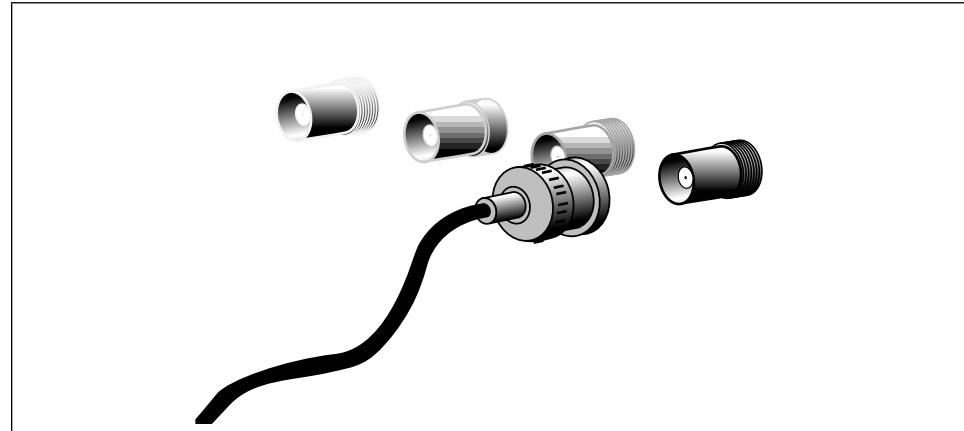


Figure 4: BNC Connector

BNC-T Connections. The AT-3004SL and AT-3008SL BNC ports have their own switchable $50\ \Omega$ termination located on the back panel next to each BNC port. See Figure 5. If installing with BNC-T connectors in the center of a segment then the ports internal termination must be disabled (OFF). The segments termination should then be placed at each end of that cable segment.

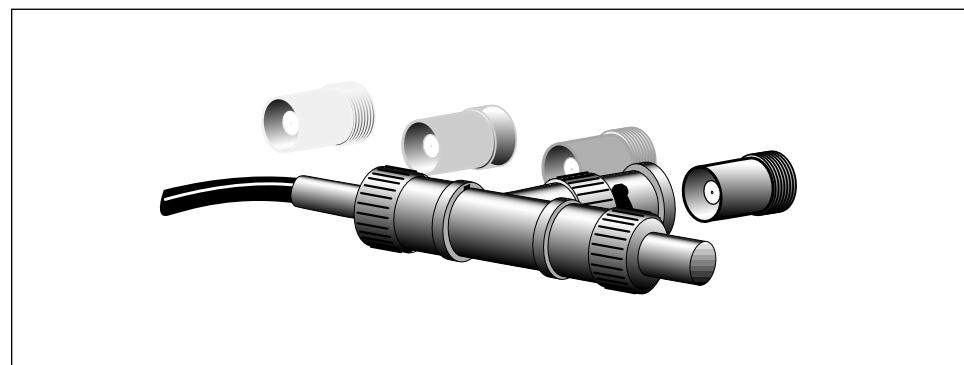


Figure 5: BNC-T Connector



If there is no BNC connection on a BNC port then the internal $50\ \Omega$ termination should be enabled ($50\ \Omega$ switch to ON position) even if the port is unused or Off Line. This will ensure a Radio Frequency Interface (RFI) noise tolerant configuration.

Ventilation

The CentreCOM Multiport Repeater has a ventilation fan and ventilation holes on the sides of the chassis. Do not restrict the flow of air through these openings. Doing so may cause over-heating and possible component damage.

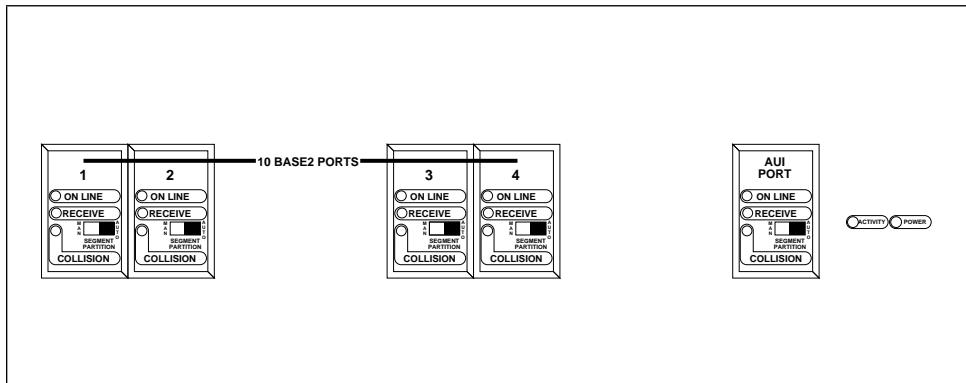
Chapter 3

Operation

Status Indicators

The CentreCOM Multiport Repeaters have 3 LED indicators for each port. These indicators, as shown in Figure 6, provide On Line, Activity and SQE/COL information.

Figure 6: Front Status Indicators



On Line—Indicates the port is connected to any other On Line ports. If the Auto/Manual switch is in the Auto position then the On Line indicator should be illuminated. If the On Line LED is not illuminated then the segment has been automatically partitioned. This could be a possible segment failure. Check for proper termination and segment configuration. If there are any spare ports available a coaxial swap to another port may identify the problem.

Receive—Indicates that the port is functional and incoming packets are present. If illuminated, incoming packets from the other ports are available at the port. Conversely, if extinguished then no receive traffic is present.

Collision—Indicates SQE or a Collision. A flickering LED will indicate Collisions. Occasional Collisions are common with networks. Excessive Collisions is an indication of possible segment problems. A constantly illuminated SQE/COL LED may indicate that a port, cabling, or excessive traffic problem exists.

Segmentation Switch—A manual partitioning switch. This switch enables you to manually partition a port. For normal operation, switch needs to be in the Auto position.

Activity—This LED indicates that the repeater is functional and is transmitting packets to all ports.

Power—The red LED indicator illuminates when power is applied.

Segmentation (Partitioning)

During power-up, the CentreCOM Multiport Repeater will automatically enable the port provided the Auto/Manual switch is in the Auto position and no problems are detected. If a problem is detected, or if the switch is in the Manual mode, the port and associated cabling are isolated from the other ports. All ports may be individually isolated from the others by placing the Auto/Manual switch into the Manual position. Manual may be considered as local operation of the segment. The segment could be fully operational and still isolated from other ports. By partitioning port 1, all remaining BNC ports, could maintain their connectivity while being isolated from the backbone cable attached through the AUI port.

System Check

► To ensure proper operation

1. Set each port to Manual.
2. Check the network cabling to ensure it is properly connected and terminated.
3. If so, apply the proper power connections.
4. Enable each port by placing the Auto/Manual switch to Auto. Only enable (by placing the Auto/Manual switch to Auto) the ports that have cable segments attached.

Note



For first time installations, it is suggested that each port be brought up and tested one at a time and that an Ethernet compatible diagnostic tester is used to validate proper operation. If no diagnostic tester is available, then moderate traffic between segments will suffice. It is advisable to initially validate each port even if only a few are required at first. After BNC segments are validated between each other, enable the AUI port, if attached, and test for traffic through these port.

Chapter 4

Troubleshooting

If network traffic problems are suspected

1. If the power LED is not illuminated, check the power connections.
2. If the CentreCOM Multiport repeater is receiving power, check that terminations are correct on all BNC ports.
3. If any ports are disconnected verify that they are switched off line by ensuring that the Auto/Manual switch is in the Manual position.
4. If only one segment is non-functional then try another port to determine if the port or cable segment is at fault.

If the SQE/COL LED is constantly illuminated

1. Check for a missing (open) or shorted terminator.

Excessive flickering of the SQE/COL LED will indicate too many frame Collisions on the segment. This may be caused by an overloaded segment or by a marginal cable or connection.

If no ports are functional and the Power LED is illuminated

1. Try a known good repeater to test and validate the segment.
2. Call Technical Support at 1-800-428-4835 or refer to Appendix A for the faxnumber for the nearest ATI location for further assistance.

Chapter 5

Configuration

Figure 7 illustrates connections of the two CentreCOM Multiport Repeaters together using ATI fiber optic transceivers.

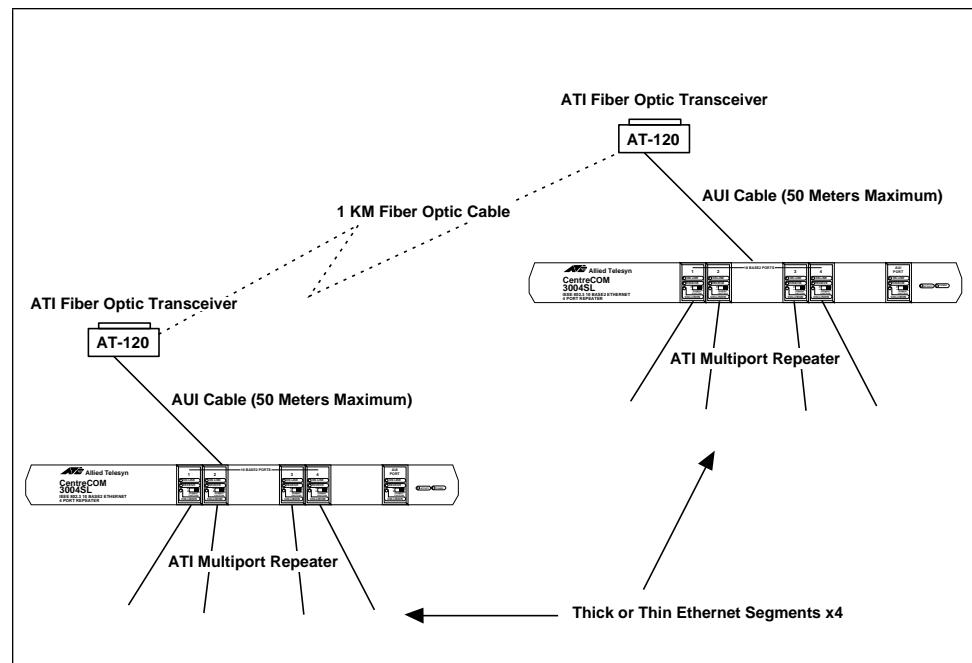


Figure 7: AT-3004SL Multiport Repeater Configuration

Figure 8 illustrates connection of the CentreCOM Multiport Repeater to a thick Ethernet backbone supporting 8 thin Ethernet segments.

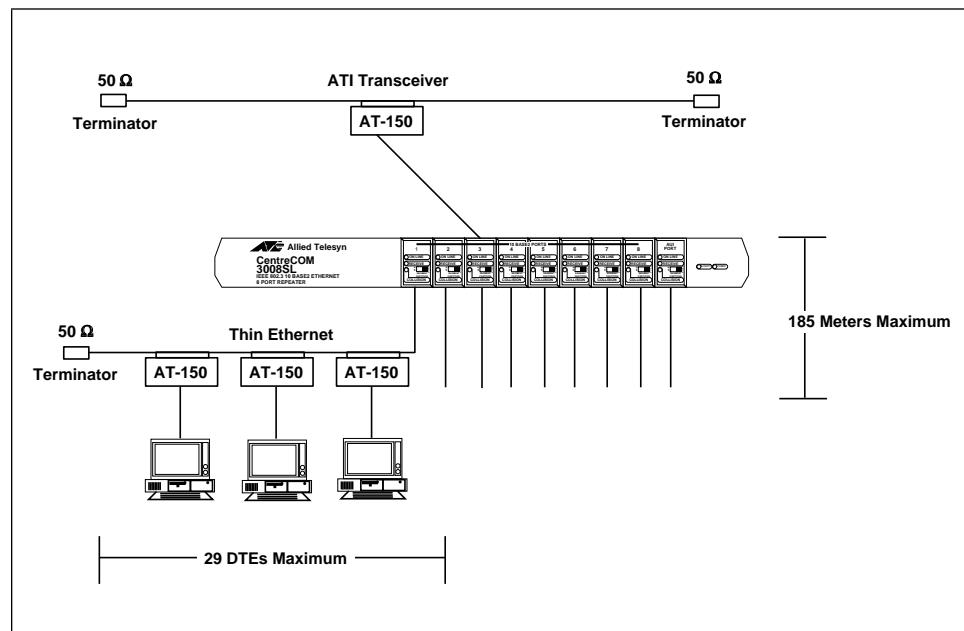


Figure 8: AT-3008SL Ethernet Configuration

Appendix A

Data Cabling Techniques

The following sections detail cabling techniques and port specifications for IEEE 802.3 media. For comprehensive treatment of these topics, refer to the original IEEE specification.

10BASE-T

UTP links support transmissions up to 100 meters (328 ft.) at 10 Megabit data rates.

A serious problem exists concerning identification of modular cable. There are various grades of voice-quality and data-quality cables available. These can appear to be similar externally, although their high-speed data transmission characteristics are radically different.

The identification problem is exaggerated by the fact that some suppliers have sold purportedly data-quality cables manufactured with voice-quality cabling. If any voice-quality cabling is used in a 10BASE-T network system, data movement is slow, collision-prone or non-existent. To confuse the issue, the Link indicator on the interface will usually indicate a valid link in such a case.

For the foregoing reasons, it is absolutely vital that you use only Level 3, 4 or 5 cabling with 10BASE-T connections. As a rule of thumb, if a cable type is flat, it is usually untwisted, and will cause problems. If a cable is more or less round in section, it will typically work.

Table 1 shows the five common modular cable specifications and their applicability to 10BASE-T network use.

Table 1: Usable and Unusable Twisted Pair Cable

Cable Level	Cable Description	AC Character	Specification	Twist/Foot	10BASE-T OK?
1	Unshielded untwisted	N/A	CCITT	N/A	NO!
2	Individual UTP	$100 \Omega \pm 30 \Omega$	RS232 10BASE5 AT&T PDS	N/A	NO!
3	Typical Individual UTP	$100 \Omega \pm 15 \Omega$	TI, AT&T ISDN 10BASE-T IBM Type 3	3-5	YES
4	Enhanced Individual UTP	$100 \Omega \pm 30 \Omega$	EIA, TIA 10BASE-T NEMA	5-8	YES
5	Individual UTP	$100 \Omega \pm 30 \Omega$	EIA, TIA 10BASE-T	8-10	YES

UTP Hub-to-MAU Wiring

The AT-4016TR has 10BASE-T UTP ports with industry-standard RJ45 receptacles. The standard network connection is from a Data Communications Equipment (DCE) device, such as the repeater, to a DTE device, such as a workstation Network Interface Controller (NIC). This configuration uses a straight-through cable (see Figure 9).

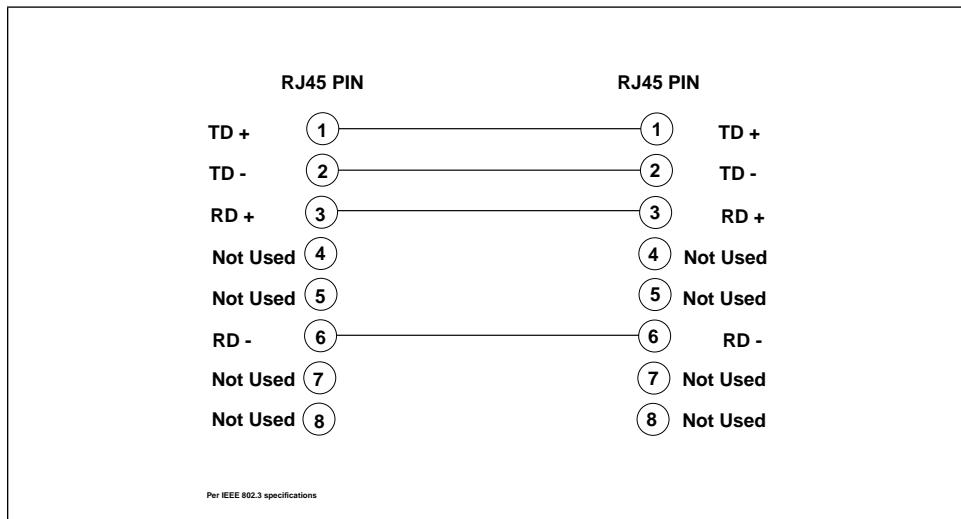
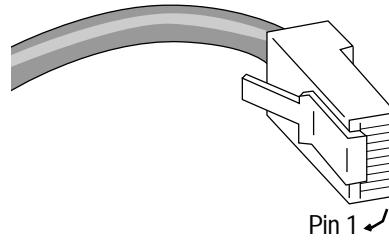


Figure 9: 10BASE-T UTP Cabling Hub-to-MAU or NIC (Straight-Through)

Figure 10 shows a UTP cable with an RJ45 connector. For a 10BASE-T link between a hub and a Media Access Unit (MAU) or NIC the cable is wired straight-through. That is, an RJ45 receptacle at the hub would wire pin-to-pin to the RJ45 receptacle at the MAU, as shown in Figure 9 above.

Figure 10: RJ45 Cable



UTP MAU-to-MAU, Hub-to-Hub Wiring

10BASE-T MAU-to-MAU or hub-to-hub wiring generally requires a crossover cable located somewhere along the UTP cable run. This may commonly occur at the punch-down block or between the RJ45 wall receptacle and the workstation. See Figure 11.

Figure 11: Hub-to-Hub or
MAU-to-MAU Wiring

MDI/MDI-X Switch

The AT-4016TR additionally has an MDI/MDI-X pin-out switch that affects RJ45 Port #1. The RJ45 pin-out straight-through (MDI)/crossover (MDI-X) switch enables you to use a straight-through cable (see Figure 10 above) during hub-to-hub connectivity by simply placing the switch in the MDI position. This eliminates the need for making or obtaining a crossover cable, as shown in Figure 11.

Note 

The interface type that IEEE specifies as standard for an Ethernet switch such as the AT-4016TR is MDI-X. The straight-through/crossover switch merely provides convenience to avoid having to obtain an alternate cable in some applications. If you connect a cable and it does not work, try changing the MDI switch. The rule of thumb is the total number of crossovers must be odd. You cannot harm the repeater by having the MDI switch in the wrong position.

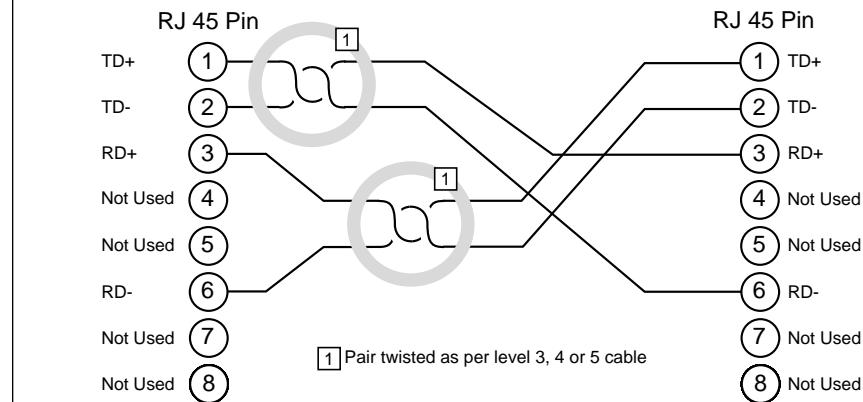


Table 2 shows which position the straight-through/crossover selection switch needs to be for the device configuration shown.

Table 2: MDI and MDI-X Switch Settings for Common Connection¹

Model	Connected to	MDI	MDI-X
AT-4016TR	Hub	X	
AT-4016TR	RJ45 Transceiver		X
AT-4016TR	NIC		X

1. This table assumes a straight-through cable is being used. The switch setting are the opposite of what is shown if a crossover cable is being used.

In both the crossover and straight-through instances, the wire is twisted pair. Figure 12 demonstrates usable and unusable cable configurations for the straight-through wire pairing in the UTP environment.

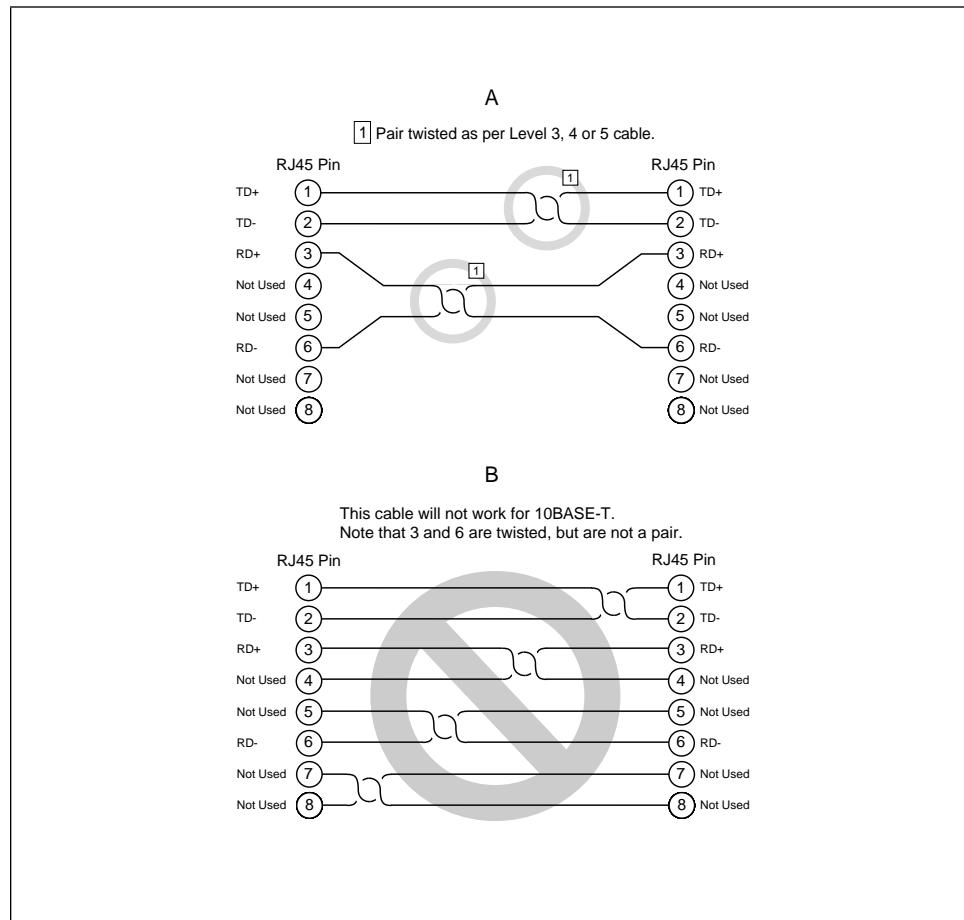


Figure 12: Hub-to-MAU Wiring
(A) Usable and (B) Unusable

Diagram A is correct because the proper pairs are twisted together. Diagram B is incorrect because the wires for the receive pair, pins 3 and 6, are not twisted together. This could result in excessive common mode noise and an unacceptably high data error rate.

If you pair pins incorrectly, for example as shown in Figure 12, Diagram B, your network may have a high data error rate. In a straight-through cable, the transmit pins, 1 and 2, are paired, as are the receive pins, 3 and 6. In a crossover cable (Figure 11), pins 1 and 2, TD+ and TD-, are paired, as are pins 3 and 6, RD+ and RD-. When pins 1 and 2 are crossed over, they connect to pins 3 and 6 respectively, and pins 3 and 6, when crossed over, connect to pins 1 and 2 respectively.

Appendix B

Glossary

10BASE2—Also called thinnet or CheaperNet, 10BASE2 is a 10 MHz, baseband, 185 meters (606 ft.) maximum coaxial segment. Cable impedance is 50Ω .

10BASE5—Also called thick Ethernet, 10BASE5 is a 10 MHz, baseband, 500 meters (1639 ft.) maximum coaxial segment. The cable is commonly referred to as yellow cable. Cable impedance is 50Ω . Thick Ethernet cable is typically used as a trunk or backbone path of the network.

10BASE-T—IEEE 802.3 UTP Ethernet. Using low cost Level 3 or better UTP wiring, 100 meters (328 ft.) of point-to-point link segments are possible. Uses RJ45 connectors and sometimes 50-pin AMP connectors to a patch panel.

50-PIN TELCO (RJ21)—This connector is very common in 10BASE-T wiring. As opposed to the RJ45 connector, the 50-pin Telco connector concentrates up to 12 UTP connections onto one connection. This concentration of UTP ports is later broken out for connection to a punch-down block inside a building's wiring closet. 50-pin Telco connections provide a very clean, uncluttered interface to the building's wiring.

ATTACHMENT UNIT INTERFACE (AUI)—This is the cable connection from a MAU (transceiver) to a DTE (typically a workstation) consisting of a 15 conductor twisted pair cable of 50 meters (164 ft.) maximum length.

BASEBAND COAXIAL SYSTEM—A system whereby information is directly encoded and impressed on the coaxial transmission medium. At any point on the medium, only one information signal at a time can be present without disruption.

BAYONET NUT COUPLE (BNC) CONNECTOR—A 10BASE2 thin coax connector with push-on BNC locking lug that quickly locks into place with a half twist.

BIT RATE (BR)—This is the rate of data throughput on the medium in bits per second. Ethernet specifies 10 million bits per second.

BRANCH CABLE—The AUI cable interconnecting the DTE and MAU system components also known as a Drop cable.

BIT TIME—The duration of one bit symbol (1/BR). Ethernet specifies a bit time of 100 ns.

COAX SEGMENT—A segment of Ethernet cable that contains MAU.

CARRIER SENSE MULTIPLE ACCESS with COLLISION DETECT (CSMA/CD)—This is the access method employed by IEEE 802.3 LAN transceivers, by which multiple stations compete for use of the transmission medium (coax cable) for data packet transmission, and provides for a level of error detection should that transmission be corrupted or impeded by contention for the transmission medium.

CARRIER SENSE—In a LAN, an ongoing activity of a data station to detect whether another station is transmitting.

COAXIAL CABLE—A two conductor (center conductor, shield system), concentric, constant impedance transmission line used as the trunk medium in the baseband system.

COAXIAL CABLE SEGMENT—A length of coaxial cable sections and coaxial connectors, and terminated at each end in its characteristic impedance.

COLLISION—An unwanted condition that results from concurrent transmissions on the physical medium.

COLLISION PRESENCE—A signal provided by the PLS to the PMA sublayer (within the physical layer) to indicate that multiple stations are contending for access to the transmission medium.

COMPATIBILITY INTERFACE—The MDI coaxial cable interface and the AUI branch cable interface, the two points at which hardware compatibility is defined to allow connection of independently designed and manufactured components to the baseband transmission system.

CROSS-OVER—Wiring is used when connecting a 10BASE-T MAU to another 10BASE-T MAU or a 10BASE-T hub to another 10BASE-T hub. For example, one 10BASE-T MAU would have the TD pair on the same pins as another 10BASE-T MAU. If pins were wired straight, there would be two transmitters on one pair with no receiver. Therefore, the cross-over cable crosses the TD pair with the RD pair of UTP cable connecting the TD pins on one end to the RD pins at the other end.

D-SUB CONNECTOR—The AUI cable uses 15-pin D-sub connectors. “D” refers to the shape of the connector shell. Also called miniature D, DB15, or DIX connectors.

DATA COMMUNICATION EQUIPMENT (DCE)—In RS232 specification a unit, such as a modem, for connecting a DTE to other equipment. A repeater connected to a terminal or workstation for OMEGA LOCAL management use is wired as a DCE.

DATA TERMINAL EQUIPMENT (DTE)—In RS232 specification a unit typically at the end of a segment. The DTE could be an Ethernet workstation, repeater, or bridge.

DEPARTMENT CONCENTRATOR—Hub which provides a large number of workstation connections. In this manual the term department concentrator refers to multiple repeaters housed in an AT-36C8 chassis. See Hub/Repeater, Repeater.

DIX CONNECTOR—See D-Sub Connector

HARMONICA ADAPTER—This adapter provides a simple way to convert the 50-pin Telco connection to RJ45 connections.

HEARTBEAT—See SQE

HUB to HUB WIRING—See Hub to MAU Wiring

HUB to MAU WIRING—UTP cables for 10BASE-T hub-to-MAU or Network Interface Controller (NIC) cards are wired straight-through. An RJ45 receptacle at the hub would wire pin to pin to the RJ45 receptacle at the MAU.

HUB/REPEATER—A hub is a central signal distributor. It is used in a wiring topology consisting of several point-to-point segments originating from a central point. The term hub is often used interchangeably with the term repeater. Multiport 10BASE-T, 10BASE2 and fiber optic (10BASE-FL, FOIRL) repeaters are considered hubs. See Repeater.

HOUSE WIRING—House wiring is the existing wiring inside a building. This wiring generally originates from one or more wiring closets such as a telephone room. Some older buildings may have wiring unsuitable for 10 Megabit data rates. In these circumstances, it is recommended that the wiring is tested with a 10BASE-T signal/wire tester.

IMPEDANCE—An electrical characteristic of a circuit dealing with the combination of the AC and DC resistance and the appearance of that resistance to attached circuits.

JABBER LOCK-UP—The MAU's ability to automatically inhibit the transmit data from reaching the medium if the transmit data time length exceeds 150 ms duration. This protects the medium from being overrun with data packets from a possibly defective device.

JAM—This is a term used to describe the collision reinforcement signal output by the MAU onto the transmission medium if the transmit data time length exceeds 150 μ s duration. This protects the medium from being overrun with data packets from a possibly defective device.

JITTER—The fluctuation of the data packet in respect to a standard clock cycle. Jitter is undesirable and must be minimized.

LINK SEGMENT—The link segment of coaxial cable is a segment which has no MAU devices but links two LAN devices together such as repeaters.

LINK TEST—In 10BASE-T Ethernet there is a link test function that validates the UTP link. This consists of a pulse transmitted from point A on one pair and validated at point B. Point B also transmits a pulse on the second pair to be validated by point A. These pulses occur during media idle states (in between packets).

MANAGEMENT AGENT—Software that is used to view hub activity and set hub variables.

MAU—See Medium Attachment Unit

MAU to MAU, HUB to HUB WIRING—10BASE-T MAU to MAU or hub to hub wiring generally requires a cross-over cable located somewhere along the UTP cable run. This may commonly occur at the punch-down block or between the RJ45 wall receptacle and the workstation.

MAU/TRANSCEIVER—An Ethernet transceiver is a MAU. A 10BASE-T MAU interfaces the UTP media to an AUI port on a workstation, repeater, bridge, or other Ethernet devices.

MDI—See Medium Dependent Interface

MEDIUM ATTACHMENT UNIT (MAU)—In a LAN, a device used in a data station to couple the DTE to the transmission medium.

MEDIUM DEPENDENT INTERFACE (MDI)—The mechanical and electrical interface between the trunk cable medium and the MAU.

N-SERIES—A barrel shaped, threaded connector used on 10BASE5 (thick Ethernet) coaxial cable.

PATCH PANEL—A 10BASE-T patch panel may be between a punch-down block and UTP workstation. The patch panel generally has a female RJ45 connector on the front for each workstation and a Telco (RJ21) connector on the back, which are wired to a punch-down block. This provides a convenient way for the installer or network manager to connect the hub 10BASE-T ports into the desired building locations.

PHYSICAL MEDIUM ATTACHMENT (PMA)—The portion of the MAU that contains the functional circuitry.

PHYSICAL SIGNALING (PLS)—That portion of the physical layer contained within the DTE that provides the logical and functional coupling between MAU and data link layers.

POLARITY CORRECTION—Many 10BASE-T UTP ports have a Polarity Correction function. If the UTP wiring has RD- and RD+ inadvertently crossed, the polarity correction function will sample the signal and electrically swap the wires. If the TD- and TD+ wires are crossed, the correction would occur at the MAU on the other end of the UTP link. This occurs within a single pair and should not be confused with the cross-over cable.

PROPAGATION DELAY—The time it takes a signal to travel from the input of a system component to the output. Usually measured in nanoseconds. IEEE 802.3 has specific propagation delay maximums for computing propagation budgets when designing a LAN. Cable length plays a major role in propagation delay. [i.e. a 50 meters (164 ft.) AUI cable has a maximum allowable propagation delay of 257 ns.] The propagation delay of cable is dependent on length and velocity factor of the cable type. There are also propagation delays associated with electronics attached to the system.

PUNCH-DOWN BLOCK—The punch-down block is the wiring panel where the house wiring from the building's offices terminates. This is where many 10BASE-T hubs would be located. Wiring installers use a special punch-down tool to insert the UTP wire for data and voice applications.

REPEATER—A device used to extend the length, topology, or interconnectivity of the physical medium beyond that imposed by a single segment, up to the maximum allowable end-to-end trunk transmission line length. Repeaters perform the basic actions of restoring signal amplitude, waveform and timing applied to normal data and collision signals.

RJ45—This connector is a 10BASE-T standard for connecting UTP cabling. They are inexpensive and easy to install onto UTP cable.

SIGNAL QUALITY ERROR (SQE)—Also referred to as Collision or Collision Presence. This occurs when two devices attempt to transmit at the same time which is an illegal condition.

SQE TEST—Commonly referred to as Heartbeat, is a special 802.3 signal sent by the MAU to the DTE to test the collision detection function. Some DTE want SQE and others do not. Repeaters do not want SQE Test.

THICK ETHERNET—See 10BASE5

THIN ETHERNET—See 10BASE2

TRUNK CABLE—The trunk coaxial cable system.

UNSHIELDED TWISTED PAIR (UTP)—A cable used in 10BASE-T wiring that consists of at least two twisted pairs of 22 to 26 AWG wire. The pairs should have at least 3 twists per foot and have an impedance of 100Ω . Level 3 and Level 4 UTP cable generally fits these criteria.

Appendix C

CentreCOM AT-3004SL/AT-3008SL Manual Feedback

Please tell us what additional information you would like to see discussed in the manual. If there are topics you would like information on that were not covered in the manual, please photocopy this page, answer the questions and fax or mail this form back to ATI. The mailing address and fax number are at the bottom of the page. Your comments are valuable when we plan future revisions of the manual.

On a scale of 1 to 10 (10 being most important), rate the importance of the following topics in this manual:

Hardware Installation	_____	Hub Management	_____
Diagnostics	_____	MIB	_____
SNMP Software	_____	Troubleshooting	_____
IEEE 802.3 Quick Primer	_____	Reading the LEDs	_____
Cabling	_____	Telnet Communication	_____
Software Downloading	_____		

I found the following the most valuable _____

I would like the following more developed _____

I would find the manual more useful if _____

Please fax or mail your feedback. Fax to 1-206-481-3790. Or mail to:
ATI Technical Publications Department
19015 North Creek Parkway, Suite 200
Bothell, WA 98011 USA

Appendix D

Technical Support Fax Order

Name _____

Company _____

Address _____

City _____ State/Province _____ Zip/PostalCode _____

Country _____ Phone _____ Fax _____

Incident Summary

Model number of ATI product I am using _____

Firmware release number of ATI product _____

Other network software products I am using (e.g., network managers)

Brief summary of problem _____

Conditions (List the steps that led up to the problem.)

Detailed description (Please use separate sheet)

Please also fax printouts of relevant files such as batch files and configuration files.

Technical Support Fax Numbers:

Asia Singapore, Taiwan, Thailand, Malaysia, Indonesia, Korea, Hong Kong, Philippines, China, India	(+65) 383-2079
France France, Belgium, Luxembourg, Holland, Italy, Spain, Australia, New Zealand, Greece, Middle East, Africa, South America	(+33) 1-69-28-37-49
Germany Germany, Switzerland, Austria, Eastern Europe	(+49) 30-435-70-650
North America United States, Canada, Mexico	(206) 481-3790
United Kingdom United Kingdom, Denmark, Norway, Sweden, Finland, Iceland	(+44) 1-865-390-002